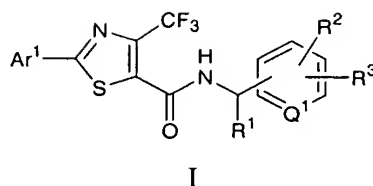


**CLAIMS**

We claim:

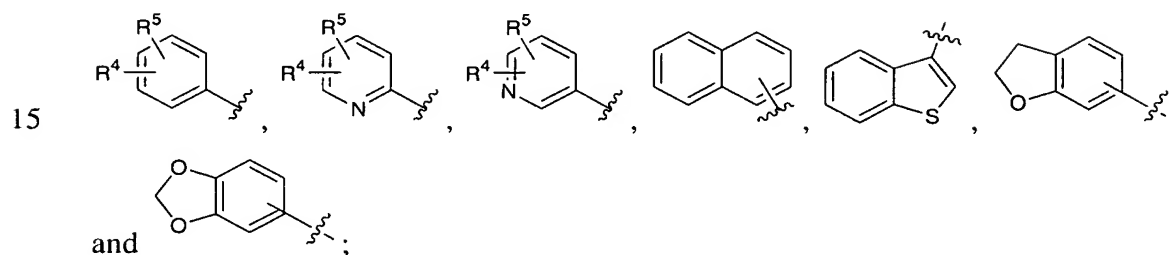
- 5 1. A compound of Formula I



- 10 where:

Q¹ is CH or N;

Ar¹ is selected from the group consisting of

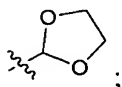


R¹ is hydrogen, C₁-₆alkyl, hydroxymethyl, or trifluoromethyl;

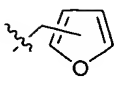
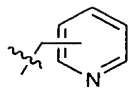
- 20 R² is halogen, C₁-₆alkyl, C₁-₂perfluoroalkyl, C₁-₆alkoxy, C₁-₂perfluoroalkoxy, -NR⁶R⁷, -(CH₂)₁-₄NR⁶R⁷, -O(CH₂)₂-₃NR⁶R⁷, or pyridyl;

R³ is hydrogen, halogen, or C₁-₆alkoxy;

- 25 R⁴ is halogen, C₁-₆alkyl, C₁-₆alkoxy, -NR⁶R⁷, -(CH₂)₁-₄NR⁶R⁷, -O(CH₂)₂-₃NR⁶R⁷, or



$R^5$  is hydrogen, halogen, or  $C_{1-6}$ alkoxy;

$R^6$  is hydrogen,  $C_{1-6}$ alkyl,  $-C(=NH)NH_2$ , , or  ;

5  $R^7$  is hydrogen or  $C_{1-6}$ alkyl;

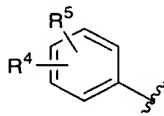
or  $R^6$  and  $R^7$  taken together are  $-CH_2CH(CH_3)OCH(CH_3)CH_2-$  or  $-CH_2CH_2XCH_2CH_2-$ , where X is a chemical bond,  $CH_2$ ,  $CHOH$ ,  $NH$ ,  $NCH_3$ ,  $NCOCH_3$ , O, or S;

10

or a pharmaceutically acceptable salt or solvate thereof.

2. A compound of claim 1 where  $Q^1$  is CH.

15 3. A compound of claim 1 where  $Ar^1$  is



4. A compound of claim 3 selected from the group consisting of

20 2-(4-fluorophenyl)-N-[1-[3-(trifluoromethoxy)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-(2-methoxyphenyl)-N-[1-[3-(trifluoromethoxy)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

25 2-(2-methoxyphenyl)-4-(trifluoromethyl)-N-[1-[3-(trifluoromethyl)phenyl]ethyl]-5-thiazolecarboxamide;

2-(2-fluorophenyl)-N-[1-[3-(trifluoromethoxy)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

30

2-(2-fluorophenyl)-4-(trifluoromethyl)-N-[1-[3-(trifluoromethyl)phenyl]ethyl]-5-thiazolecarboxamide;

5 2-(2-methoxyphenyl)-N-[(1*S*)-1-[3-(4-morpholinyl)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-(3-methoxyphenyl)-N-[1-[3-(trifluoromethoxy)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

10 N-[1-[3-(dimethylamino)phenyl]ethyl]-2-(2-methoxyphenyl)-4-(trifluoromethyl)-5-thiazolecarboxamide;

N-[1-[3-(dimethylamino)phenyl]ethyl]-2-(2-fluorophenyl)-4-(trifluoromethyl)-5-thiazolecarboxamide;

15 N-[(3-fluorophenyl)methyl]-2-(2-methoxyphenyl)-4-(trifluoromethyl)-5-thiazolecarboxamide;

20 2-(4-methoxyphenyl)-N-[1-[3-(trifluoromethoxy)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-(3,4-dimethoxyphenyl)-N-[1-[3-(trifluoromethoxy)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

25 2-(2,4-dimethoxyphenyl)-N-[1-[3-(trifluoromethoxy)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-(2,4-dimethoxyphenyl)-N-[(1*S*)-1-[3-(4-morpholinyl)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

30 2-(2-methoxyphenyl)-N-[1-[3-(1-piperidinyl)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-(2-methoxyphenyl)-N-[1-[3-(1-pyrrolidinyl)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

5 N-[1-[3-[(2-furanylmethyl)methylamino]phenyl]ethyl]-2-(2-methoxyphenyl)-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-(2-fluorophenyl)-N-[1-[3-[(2-furanylmethyl)methylamino]phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

10 2-(3,4-dimethoxyphenyl)-N-[1-[3-(1-pyrrolidinylmethyl)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-(2-fluorophenyl)-N-[1-[3-(4-morpholinylmethyl)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

15 N-[1-(3-aminophenyl)ethyl]-2-(2-methoxyphenyl)-4-(trifluoromethyl)-5-thiazolecarboxamide;

20 N-[1-[3-[(aminoiminomethyl)amino]phenyl]ethyl]-2-(2-methoxyphenyl)-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-(5-fluoro-2-methoxyphenyl)-N-[1-[3-(trifluoromethoxy)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

25 N-[1-[3-(dimethylamino)phenyl]ethyl]-2-(5-fluoro-2-methoxyphenyl)-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-(5-fluoro-2-methoxyphenyl)-4-(trifluoromethyl)-N-[1-[3-(trifluoromethyl)phenyl]ethyl]-5-thiazolecarboxamide;

30 2-(5-fluoro-2-methoxyphenyl)-N-[(3-fluorophenyl)methyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-(5-fluoro-2-methoxyphenyl)-N-[(3-methoxyphenyl)methyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-(5-fluoro-2-methoxyphenyl)-N-[[3-(trifluoromethoxy)phenyl]methyl]-4-  
5 (trifluoromethyl)-5-thiazolecarboxamide;

2-(5-fluoro-2-methoxyphenyl)-N-[(1*S*)-1-[3-(4-morpholinyl)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

10 2-(5-fluoro-2-methoxyphenyl)-N-[(1*S*)-1-(3-methoxyphenyl)ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-(2-chlorophenyl)-N-[1-[3-(trifluoromethoxy)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

15 2-(2-chlorophenyl)-N-[1-[3-(dimethylamino)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-(2-chlorophenyl)-4-(trifluoromethyl)-N-[1-[3-(trifluoromethyl)phenyl]ethyl]-5-  
20 thiazolecarboxamide;

2-(2-chlorophenyl)-N-[(1*S*)-1-[3-(4-morpholinyl)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

25 2-(2-chlorophenyl)-N-[1-[3-(4-morpholinylmethyl)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-[2-[2-(diethylamino)ethoxy]phenyl]-N-[(3-fluorophenyl)methyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

30 N-[(1*S*)-1-(3-methoxyphenyl)ethyl]-2-[2-(4-morpholinyl)phenyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-[2-(4-morpholinyl)phenyl]-4-(trifluoromethyl)-N-[1-[3-(trifluoromethyl)phenyl]ethyl]-5-thiazolecarboxamide;

2-[2-(4-morpholinyl)phenyl]-N-[1-[3-(trifluoromethoxy)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-[4-(4-morpholinyl)phenyl]-N-[1-[3-(trifluoromethoxy)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-[2-[[ethyl(4-pyridinylmethyl)amino]methyl]phenyl]-N-[[3-(trifluoromethoxy)phenyl]methyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-[2-[[ethyl(4-pyridinylmethyl)amino]methyl]phenyl]-N-[(1S)-1-(3-methoxyphenyl)ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-[2-[(dimethylamino)methyl]phenyl]-N-[1-[3-(trifluoromethoxy)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-[2-[(dimethylamino)methyl]phenyl]-N-[[3-(trifluoromethoxy)phenyl]methyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-[2-[(dimethylamino)methyl]phenyl]-N-[(1S)-1-(3-methoxyphenyl)ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-[2-[(diethylamino)methyl]phenyl]-N-[1-[3-(trifluoromethoxy)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-[2-[(diethylamino)methyl]phenyl]-4-(trifluoromethyl)-N-[1-[3-(trifluoromethyl)phenyl]ethyl]-5-thiazolecarboxamide;

2-[2-[(diethylamino)methyl]phenyl]-N-[(3-fluorophenyl)methyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-[2-[(diethylamino)methyl]phenyl]-N-[[3-(trifluoromethoxy)phenyl]methyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-[2-[(diethylamino)methyl]phenyl]-N-[(1*S*)-1-[3-(4-morpholinyl)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-[2-[(diethylamino)methyl]phenyl]-N-[(1*S*)-1-(3-methoxyphenyl)ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

10 2-(4-fluorophenyl)-4-(trifluoromethyl)-N-[1-[3-(trifluoromethyl)phenyl]ethyl]-5-thiazolecarboxamide;

2-(2-methoxyphenyl)-N-(3-pyridinylmethyl)-4-(trifluoromethyl)-5-thiazolecarboxamide;

15 N-[(3-fluorophenyl)methyl]-2-(3-methoxyphenyl)-4-(trifluoromethyl)-5-thiazolecarboxamide;

20 N-[1-(2,3-dihydro-5-benzofuranyl)ethyl]-2-(3-methoxyphenyl)-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-(3-methoxyphenyl)-N-(3-pyridinylmethyl)-4-(trifluoromethyl)-5-thiazolecarboxamide;

25 2-(3,4-dimethoxyphenyl)-4-(trifluoromethyl)-N-[1-[3-(trifluoromethyl)phenyl]ethyl]-5-thiazolecarboxamide;

2-(3,4-dimethoxyphenyl)-N-[1-(3,4-dimethoxyphenyl)ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

30 2-(3,4-dimethoxyphenyl)-N-[[3-(trifluoromethoxy)phenyl]methyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-(3-fluorophenyl)-4-(trifluoromethyl)-N-[1-[3-(trifluoromethyl)phenyl]ethyl]-5-thiazolecarboxamide;

5 2-(2,4-dimethoxyphenyl)-N-[(3-fluorophenyl)methyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-(3-fluorophenyl)-N-[1-[3-(trifluoromethoxy)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

10 N-[1-(3-bromophenyl)ethyl]-2-(2-methoxyphenyl)-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-[3-(4-morpholinyl)phenyl]-N-[1-[3-(trifluoromethoxy)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

15

2-[3-(4-morpholinyl)phenyl]-4-(trifluoromethyl)-N-[1-[3-(trifluoromethyl)phenyl]ethyl]-5-thiazolecarboxamide;

20 N-[(1*S*)-1-(3-methoxyphenyl)ethyl]-2-[3-(4-morpholinyl)phenyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-[2-[2-(diethylamino)ethoxy]phenyl]-N-[(1*S*)-1-[3-(4-morpholinyl)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

25 2-[2-[2-(diethylamino)ethoxy]phenyl]-N-[(1*S*)-1-(3-methoxyphenyl)ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

N-[1-(3-aminophenyl)ethyl]-2-(2-fluorophenyl)-4-(trifluoromethyl)-5-thiazolecarboxamide;

30

2-[2-[2-(diethylamino)ethoxy]-5-fluorophenyl]-N-[1-[3-(trifluoromethoxy)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;



2-[2-[(dimethylamino)methyl]phenyl]-4-(trifluoromethyl)-N-[1-[3-(trifluoromethyl)phenyl]ethyl]-5-thiazolecarboxamide;

5 2-[2-[(diethylamino)methyl]phenyl]-N-[1-[3-(4-morpholinylmethyl)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-[2-[(diethylamino)methyl]phenyl]-N-[1-[3-(3-pyridinyl)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

10 2-[2-(4-morpholinylmethyl)phenyl]-N-[1-[3-(trifluoromethoxy)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-[2-(4-morpholinylmethyl)phenyl]-N-[[3-(trifluoromethoxy)phenyl]methyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

15 2-[2-(4-morpholinylmethyl)phenyl]-N-[(1*S*)-1-[3-(4-morpholinyl)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

20 2-(3-fluorophenyl)-N-[(3-fluorophenyl)methyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

N-[(1*S*)-1-(3-methoxyphenyl)ethyl]-2-[2-(4-morpholinylmethyl)phenyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

25 N-[(1*S*)-1-(3-methoxyphenyl)ethyl]-2-[2-[(4-methyl-1-piperazinyl)methyl]phenyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-[2-[[ethyl(4-pyridinylmethyl)amino]methyl]phenyl]-N-[1-[3-(trifluoromethoxy)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

30 2-[2-[[ethyl(4-pyridinylmethyl)amino]methyl]phenyl]-N-[(3-methoxyphenyl)methyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-[2-[[ethyl(4-pyridinylmethyl)amino]methyl]phenyl]-N-[(1*S*)-1-[3-(4-morpholinyl)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

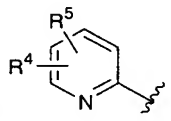
2-[2-[[ethyl(4-pyridinylmethyl)amino]methyl]phenyl]-N-[1-[3-(4-morpholinylmethyl)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-[2-[[ethyl(4-pyridinylmethyl)amino]methyl]phenyl]-N-[1-[3-(3-pyridinyl)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-(2-methylbenzoyl)-N-[1-[3-(trifluoromethoxy)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide; and

N-[1-[4-fluoro-3-(4-morpholinyl)phenyl]ethyl]-2-(2-methylbenzoyl)-4-(trifluoromethyl)-5-thiazolecarboxamide.

15



5. A compound of claim 1 where Ar<sup>1</sup> is

6. A compound of claim 5 selected from the group consisting of

2-[3-[(diethylamino)methyl]-2-pyridinyl]-N-[1-[3-(trifluoromethoxy)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-[3-[[ethyl(4-pyridinylmethyl)amino]methyl]-2-pyridinyl]-N-[(1*S*)-1-[3-(4-morpholinyl)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

25

2-[3-[[ethyl(4-pyridinylmethyl)amino]methyl]-2-pyridinyl]-N-[1-[3-(4-morpholinylmethyl)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

N-[(1*S*)-1-[3-[(2*R*,6*S*)-2,6-dimethyl-4-morpholinyl]phenyl]ethyl]-2-[3-(4-

30 morpholinylmethyl)-2-pyridinyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

N-[(1*S*)-1-[3-[(2*R*,6*S*)-2,6-dimethyl-4-morpholinyl]phenyl]ethyl]-2-[3-[[ethyl(1-methylethyl)amino]methyl]-2-pyridinyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

5 N-[(1*S*)-1-[3-[(2*R*,6*S*)-2,6-dimethyl-4-morpholinyl]phenyl]ethyl]-2-[3-[[ethyl(4-pyridinylmethyl)amino]methyl]-2-pyridinyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-[3-(4-morpholinylmethyl)-2-pyridinyl]-N-[(1*S*)-1-[3-(3-pyridinyl)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

10

2-[3-[[ethyl(1-methylethyl)amino]methyl]-2-pyridinyl]-N-[(1*S*)-1-[3-(3-pyridinyl)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

15 2-[3-[[ethyl(4-pyridinylmethyl)amino]methyl]-2-pyridinyl]-N-[(1*S*)-1-[3-(3-pyridinyl)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-[3-[[ethyl(1-methylethyl)amino]methyl]-2-pyridinyl]-N-[1-[3-(trifluoromethoxy)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

20 2-[3-[(diethylamino)methyl]-2-pyridinyl]-4-(trifluoromethyl)-N-[1-[3-(trifluoromethyl)phenyl]ethyl]-5-thiazolecarboxamide;

2-[3-[[ethyl(1-methylethyl)amino]methyl]-2-pyridinyl]-4-(trifluoromethyl)-N-[1-[3-(trifluoromethyl)phenyl]ethyl]-5-thiazolecarboxamide;

25

2-(3-methyl-2-pyridinyl)-N-[(1*S*)-1-[3-(3-pyridinyl)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

30 2-(3-methyl-2-pyridinyl)-N-[(1*S*)-1-[3-(4-morpholinyl)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-[3-(1,3-dioxolan-2-yl)-2-pyridinyl]-N-[1-[3-(trifluoromethoxy)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

2-[3-[[ethyl(1-methylethyl)amino]methyl]-2-pyridinyl]-N-[(1*S*)-1-[3-(4-morpholinyl)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide;

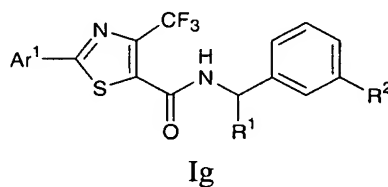
2-[3-[[ethyl(4-pyridinylmethyl)amino]methyl]-2-pyridinyl]-N-[1-[3-(trifluoromethoxy)phenyl]ethyl]-4-(trifluoromethyl)-5-thiazolecarboxamide; and

2-[3-(4-morpholinylmethyl)-2-pyridinyl]-4-(trifluoromethyl)-N-[1-[3-(trifluoromethyl)phenyl]ethyl]-5-thiazolecarboxamide.

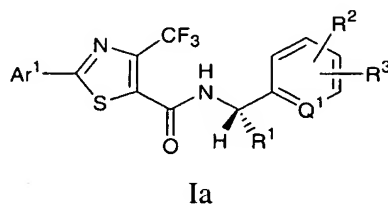
7. A compound of claim 1 where R<sup>1</sup> is methyl.

8. A compound of claim 1 where R<sup>1</sup> is hydrogen.

9. A compound of claim 1 where the structure is that of Formula Ig.



10. A compound of claim 1 where R<sup>1</sup> is C<sub>1-6</sub>alkyl and the stereochemical configuration is that of Formula Ia.



11. A pharmaceutical composition comprising a compound of claim 1 and a pharmaceutically acceptable carrier.

12. A method for treating disorders responsive to opening KCNQ potassium channels comprising administering to a patient a therapeutically effective amount of a compound of claim 1.

13. The method of claim 12 where the disorders are acute and chronic pain, migraine, neuropathic pain, bipolar disorders, convulsions, mania, epilepsy, anxiety, depression and neurodegenerative disorders.

5 14. The method of claim 12 where the disorder is migraine.

15. The method of claim 12 where the disorder is neuropathic pain.

16. The method of claim 12 where the disorder is bipolar disorder.

10

17. The method of claim 12 where the disorder is anxiety.